

**WHAT IS CLAIMED IS:**

1. An interface device for attaching a printhead carrier to a carrier drive belt, comprising:
  - a belt holder attached to said carrier drive belt; and
  - an isolator coupled between said belt holder and said printhead carrier, said
- 5 isolator being configured to provide directionally dependent filtering of vibrations propagating to said printhead carrier.
  
2. The interface device of claim 1, said isolator providing a first dampening of vibration when said printhead carrier is moved in a first direction and providing a second dampening of vibration different from said first dampening of vibration when said printhead carrier is transported in a second direction opposite to said first
- 5 direction.
  
3. The interface device of claim 2, said isolator being configured as an asymmetrical isolator comprising:
  - a main body having a centerline; and
  - a supplemental dampening body extending from said main body such that said
- 5 asymmetrical isolator is asymmetrical with respect to said centerline of said main body.
  
4. The interface device of claim 3, said first direction being in a direction toward a carrier motor and said second direction being a direction away from said carrier motor, said supplemental dampening body being positioned from said centerline of said main body in said direction toward said carrier motor.
  
5. The interface device of claim 3, said asymmetrical isolator being formed from an elastomeric material as a unitary structure.
  
6. The interface device of claim 3, further comprising a slot extending through said main body along said centerline, said slot being sized to snugly receive a portion of said belt holder.

7. The interface device of claim 6, said belt holder being formed from plastic.
8. The interface device of claim 6, said belt holder comprising:  
a shank having a proximal end and a distal end;  
a head portion attached to said proximal end of said shank, said head portion defining a first inwardly facing retention surface, said head portion providing attachment to said carrier drive belt; and  
5 a nose portion attached to said distal end of said shank, said nose portion defining a second inwardly facing retention surface.  
said main body being placed in a state of compression between said first inwardly facing retention surface and said second inwardly facing retention surface.
9. The interface device of claim 3, said printhead carrier defining a receptacle for receiving said asymmetrical isolator, said receptacle defining a first primary thrust wall and a second primary thrust wall spaced apart from said first primary thrust wall, said asymmetrical isolator having a first end surface located at said main body and a  
5 second end surface located at said supplemental dampening body, said first end surface engaging said first primary thrust wall and said second end surface engaging said second primary thrust wall.
10. The interface device of claim 9, said supplemental dampening body being in the form of a wing.
11. The interface device of claim 9, said first direction being in a direction toward a carrier motor and said second direction being a direction away from said carrier motor, said supplemental dampening body being positioned from said centerline of said main body in said direction toward said carrier motor.
12. The interface device of claim 9, said receptacle further defining a secondary thrust wall, said supplemental dampening body having a side surface that engages said secondary thrust wall.

13. The interface device of claim 1, said isolator being an asymmetrical isolator and said printhead carrier defining a receptacle for receiving said asymmetrical isolator, said printhead carrier having a latch for engaging a latch slot formed in said asymmetrical isolator to retain said asymmetrical isolator in said  
5 receptacle.

14. The interface device of claim 1, said isolator having a center of mass, and a centerline of said belt holder being spaced from said center of mass of said isolator by a distance along a main scan direction of said printhead carrier.

15. The interface device of claim 1, said isolator being made from multiple materials having different stiffness properties.

16. The interface device of claim 1, said isolator being made from a single material having multiple stiffness properties.

17. The interface device of claim 16, said isolator being made from an elastomeric material having at least one of a different amount of hardener, additives, air bubbles and holes located in a portion of said isolator.

18. A method for attaching a printhead carrier to a carrier drive belt, comprising:

providing a belt holder attached to said carrier drive belt; and  
coupling an isolator between said belt holder and said printhead carrier, said  
5 isolator being configured to provide directionally dependent filtering of vibrations propagating to said printhead carrier.

19. The method of claim 18, said isolator performing the steps of:  
providing a first dampening of vibration when said printhead carrier is moved in a first direction; and

5 providing a second dampening of vibration different from said first dampening  
of vibration when said printhead carrier is transported in a second direction opposite  
to said first direction.

20. The method of claim 18, wherein said isolator has an asymmetrical  
configuration.

21. The method of claim 18, said isolator having a center of mass, and a  
centerline of said belt holder being spaced from said center of mass of said isolator by  
a distance along a main scan direction of said printhead carrier.

22. The method of claim 18, said isolator being made from multiple materials  
having different stiffness properties.

23. The method of claim 18, said isolator being made from a single material  
having multiple stiffness properties.

24. An imaging apparatus, comprising,  
a printhead carrier;  
a carrier drive belt;  
a belt holder attached to said carrier drive belt; and  
5 an isolator coupled between said belt holder and said printhead carrier, said  
isolator being configured to provide directionally dependent filtering of vibrations  
propagating to said printhead carrier.

25. The imaging apparatus of claim 24, said isolator providing a first  
dampening of vibration when said printhead carrier is moved in a first direction and  
providing a second dampening of vibration different from said first dampening of  
vibration when said printhead carrier is transported in a second direction opposite to  
5 said first direction.

26. The imaging apparatus of claim 25, said isolator being configured as an asymmetrical isolator, comprising:

a main body having a centerline; and

5 a supplemental dampening body extending from said main body such that said asymmetrical isolator is asymmetrical with respect to said centerline of said main body.

27. The imaging apparatus of claim 26, said first direction being in a direction toward a carrier motor and said second direction being a direction away from said carrier motor, said supplemental dampening body being positioned from said centerline of said main body in said direction toward said carrier motor.

28. The imaging apparatus of claim 26, said asymmetrical isolator being formed from an elastomeric material as a unitary structure.

29. The imaging apparatus of claim 26, further comprising a slot extending through said main body along said centerline, said slot being sized to snugly receive a portion of said belt holder.

30. The imaging apparatus of claim 29, said belt holder being formed from plastic.

31. The imaging apparatus of claim 29, said belt holder comprising:

a shank having a proximal end and a distal end;

5 a head portion attached to said proximal end of said shank, said head portion defining a first inwardly facing retention surface, said head portion providing attachment to said carrier drive belt; and

a nose portion attached to said distal end of said shank, said nose portion defining a second inwardly facing retention surface.

said main body being placed in a state of compression between said first inwardly facing retention surface and said second inwardly facing retention surface.

32. The imaging apparatus of claim 26, said printhead carrier defining a receptacle for receiving said asymmetrical isolator, said receptacle defining a first primary thrust wall and a second primary thrust wall spaced apart from said first primary thrust wall, said asymmetrical isolator having a first end surface located at  
5 said main body and a second end surface located at said supplemental dampening body, said first end surface engaging said first primary thrust wall and said second end surface engaging said second primary thrust wall.

33. The imaging apparatus of claim 32, said supplemental dampening body being in the form of a wing.

34. The imaging apparatus of claim 32, said first direction being in a direction toward a carrier motor and said second direction being a direction away from said carrier motor, said supplemental dampening body being positioned from said centerline of said main body in said direction toward said carrier motor.

35. The imaging apparatus of claim 32, said receptacle further defining a secondary thrust wall, said supplemental dampening body having a side surface that engages said secondary thrust wall.

36. The imaging apparatus of claim 24, said isolator being an asymmetrical isolator and said printhead carrier defining a receptacle for receiving said asymmetrical isolator, said printhead carrier having a latch for engaging a latch slot formed in said asymmetrical isolator to retain said asymmetrical isolator in said  
5 receptacle.

37. The imaging apparatus of claim 24, said isolator having a center of mass, and a centerline of said belt holder being spaced from said center of mass of said isolator by a distance along a main scan direction of said printhead carrier.

38. The imaging apparatus of claim 24, said isolator being made from multiple materials having different stiffness properties.

39. The imaging apparatus of claim 24, said isolator being made from a single material having multiple stiffness properties.

40. The imaging apparatus of claim 39, said isolator being made from an elastomeric material having at least one of a different amount of hardener, additives, air bubbles and holes located in a portion of said isolator.

41. An imaging apparatus, comprising,  
a carrier drive belt;  
a belt holder attached to said carrier drive belt;  
5 an isolator coupled to said belt holder; and  
a printhead carrier having a receptacle configured for mounting said isolator, said receptacle having a first thrust wall and a second thrust wall spaced apart from said first thrust wall along a bi-directional main scan direction of said printhead carrier, said isolator being retained between and in engagement with said first thrust  
10 wall and said second thrust wall, wherein a structural geometry of said second thrust wall is different than a structural geometry of said first thrust wall to adjust an amount of dampening in each direction along said bi-directional main scan direction to provide directionally dependent filtering of vibrations propagating to said printhead carrier.

42. The imaging apparatus of claim 41, said bi-directional main scan direction including a direction toward a carrier motor and a direction away from said carrier motor, said second thrust wall being positioned closer to said carrier motor than said first thrust wall.

43. The imaging apparatus of claim 41, said second thrust wall being shorter in length than said first thrust wall.

44. The imaging apparatus of claim 41, said second thrust wall being shorter in height than said first thrust wall.

45. The imaging apparatus of claim 41, said isolator being symmetrical.
46. The imaging apparatus of claim 41, said isolator being asymmetrical.